

WIPP: legal issues arising from surplus plutonium disposition

The National Academies
Surplus Plutonium Disposal Committee

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As a model of the proposal under discussion:

Final Report of the Plutonium Disposition Red Team

Date: 13 August 2015

Oak Ridge, Tennessee

Thom Mason, Chair

WIPP Disposal Capacity, going forward:

Red Team report:

Total legal capacity: 176,000 m³

Used for disposal: 91,000 m³

Available: 85,000 m³

Subscribed: -66,000 m³

Remaining: 19,000 m³

Space requirement: ~1000 m³ per M.Ton

“The base dilute and dispose option would require a considerably greater volume allowance, perhaps as much as 34,000 m³.” (at 30)

Other estimates of the capacity needed use the quantity 60 M.Tons. (Pu Disposition SEIS, DOE/EIS-0283-S2, at S-9 (April 2015)).

Red Team conclusions:

“To accommodate the number of CCO packages anticipated for this option, at least one additional panel would need to be mined.” (at 28)

“[W]ell over half of the entire duration of a Dilute and Dispose operation could be completed before facility expansion would be needed. This leaves adequate time to address the national imperative for additional capacity at WIPP (subject to concurrence from the State of New Mexico) without it becoming a critical path item on the Dilute and Dispose schedule . . .” (at 30).

Surface dose rate:

“DOE has revised this SPD Supplemental EIS to indicate that only CH-TRU and mixed CH-TRU waste would be generated by surplus plutonium disposition activities.” Final SPD Supplemental EIS, DOE-EIS-0283-S2 (April 2015)(at S-13 n.10).

Legal constraints:

1. C& C Agreement (and First Modification, Nov. 1984):

C&C text shows that the State relies upon statements in 1980 FEIS as to planned waste volumes and characteristics. (See First Modification, at 3).

DOE 1981 Record of Decision recites volume limits of 6.2 million cubic feet of CH TRU and 250,000 cubic feet of RH TRU. (46 Fed. Reg. 9162) (Jan. 28, 1981).

First Modification incorporates “the ROD TRU waste volumes for CH TRU and RH TRU waste into the agreement.” (DOE Permit modification request, January 31, 2018, at 8).

C&C First Modification addresses disposal of RH-TRU waste with dose rate >100 rem/hr., the limit considered in FEIS. Thus --

First Modification provides:

1. DOE will not ship RH waste with dose rate in excess of 1000 rem/hr.
2. No more than 5% of total RH volume of 250,000 ft.³ will exceed 100 rem/hr.
3. RH waste will not exceed 23 Curies per liter.
4. Total RH TRU will not exceed 5.1 million Ci.
5. “WIPP is not designed for the permanent disposal of high-level waste, nor has the WIPP site itself been characterized for such permanent disposal.”
6. Congress may amend the WIPP mission, making some or all of the agreement non-binding.

2. Land Withdrawal Act: (Pub. L. No. 102-579, amended by Pub. L. No. 104-201)(1992):

§ 2. Definitions:

(3) CONTACT-HANDLED TRANSURANIC WASTE: surface dose rate $\leq$ 200 millirem per hour.

(12) REMOTE-HANDLED TRANSURANIC WASTE: surface dose rate $\geq$ 200 millirem per hour.

§ 7. Disposal operations:

(a) TRANSURANIC WASTE LIMITATIONS.—

* * *

(3) CAPACITY OF WIPP.— The total capacity of WIPP by volume is 6.2 million cubic feet of transuranic waste.

§ 21. CONSULTATION AND COOPERATION AGREEMENT.

Nothing in this Act shall affect the Agreement or the Supplemental Stipulated Agreement between the State and the United States Department of Energy except as explicitly stated herein.

Meaning of capacity limit (6.2 million cubic feet):

The origin: 1980 Final Environmental Impact Statement (FEIS):

“This EIS analyzes the alternatives for disposing of the readily retrievable waste expected to be stored in Idaho through 1990. This waste includes the 2.4 million cubic feet shown in table 2-3 for 1986 plus an additional two-thirds of the 0.25 million cubic feet generated annually between 1986 and 1990. In addition, the WIPP would be designed to accommodate all defense TRU waste generated between 1990 and 2003.” (at 2-18).

Calculating:

INEL 1986 stored CH waste: 2376 thousand cu. ft.

2/3 of 1987-90 generated: 666 thousand cu. ft.

1991-2003 generated: 3250 thousand cu. ft.

Total: 6292 thousand cu. ft.

The FEIS states 6.2 or 6.25 million cubic feet as WIPP’s planned capacity. (at 1-5, 2-17).

INEL waste data in FEIS show container volume:

INEL's letter, in the FEIS, explains that TRU waste is recorded in INEL's Waste Management Information System, which contains data on "gross volume, gross weight, curie content, type and number of containers, unit container volume, waste description, nuclide identification and storage or disposal location." (at E-24).

INEL states: "The data for TRU waste presently in retrievable storage are the **container volume** and are considered to be accurate within ± 10%." (at E-25).

DOE has consistently stated waste data using container volume:

E.g., SEIS-II (1997):

CONSERVATISM OF TRU WASTE VOLUME ESTIMATES:

"TRU waste inventory estimates, as used throughout SEIS-II, embody many conservative assumptions to ensure bounding analyses of maximum, reasonably foreseeable impacts. The following reflect some of the conservative assumptions.

* * *

"While the LWA and C&C Agreement include limits on the volume of TRU waste that can be emplaced, there is considerable uncertainty concerning how much of a container's volume is made up of TRU waste and how much is void space. Many of the containers would include a great deal of void space, particularly for RH-TRU waste; the actual volume of waste in a drum or cask, therefore, may be much less than the volume of the drum or cask. **For the purposes of analysis in SEIS-II, the volume of the drum or cask is used, as if the drum or cask were full without void space.**" (at S-12)

The 6.2 million ft³ LWA volume limit has become a concern. DOE seeks to change how waste volume is calculated for that limit:

DOE WIPP RCRA Permit modification request, Jan. 31, 2018:

Permit would be changed to account separately for (a) TRU mixed waste volume and (b) TRU waste volume of record (VOR):

1.5.21. TRU Mixed Waste Volume

“TRU Mixed Waste Volume” means the volume of the **outermost disposal container** of TRU mixed waste pursuant to waste volumes in this Permit (for purposes of this Permit, all TRU waste is managed as though it were mixed). This volume is tracked and reported by the Permittees relative to the authorized maximum capacities in Permit Part 4, Table 4.1.1.

1.5.22. Land Withdrawal Act TRU Waste Volume of Record

“Land Withdrawal Act TRU Waste Volume of Record” means the **volume of TRU waste inside a disposal container**. This volume of record is tracked and reported, separately from the Permit, by the DOE pursuant to the WIPP Land Withdrawal Act total capacity limit of 6.2 million ft³ (175,564 m³) (Pub. L. 102-579, as amended).

DOE would use new VOR number to show compliance with Land Withdrawal Act capacity limit:

“The LWA TRU waste VOR is related to the volume of waste that resides at the generator/storage sites prior to final packaging within the payload container and is directly related to the total capacity limit specified in the WIPP LWA. Generator/storage sites package TRU mixed waste in a manner that meets transportation and radiological limits, and the resulting container volume after packaging is usually much larger than the LWA TRU waste VOR.” (at 3).

The modification request states that, when DOE prepared its application for a RCRA permit, “the WIPP LWA limit and the [hazardous waste disposal unit] limit were considered to be the same.” (at 7).

However, DOE states, experience in packaging waste has resulted in waste containers that are not as full as assumed in the [January 1981 Record of Decision.] (at 9). Therefore, DOE seeks to calculate volume differently.

3. NEPA compliance: 42 U.S.C. § 4332:

The Congress authorizes and directs that, to the fullest extent possible: . . . all agencies of the Federal Government shall—

* * *

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on--

- (i) the environmental impact of the proposed action,
- (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (iii) alternatives to the proposed action,
- (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
- (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Principles stated in NEPA decisions:

A. The restart of a facility after an accident may constitute a “major federal action.”

People Against Nuclear Energy v. NRC, 678 F.2d 222 (D.C.Cir. 1982), *rev'd on other grounds*, [*Metro. Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766](#) (1983) (Restart of Three Mile Island Unit 1).

A supplemental environmental impact statement is required (1) if the agency makes substantial changes in the proposed action that are relevant to environmental concerns, or (2) if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. [40 C.F.R. § 1502.9\(c\)\(1\) \(1981\)](#).

B. The probability and consequences of significant impacts must be shown.

For WIPP, we have no current estimate of the probability of another drum deflagration as occurred on February 14, 2014. The SEIS-II (1997) states that the probability of a fire in a waste drum is remote, or less than 10^{-4} (See G-69), as does the current Documented Safety Analysis. NEPA requires a finding of the risk that waste packages would be sent to WIPP that contain incompatible materials and the consequences of such action.

C. Segmentation does not permit a valid NEPA analysis

By regulation, “proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.” 40 CFR 1502.4(a).

The Red Team suggests that surplus plutonium be disposed of at WIPP in existing panels, and that plans to construct additional panels be delayed until they are necessary. (at 30). But DOE plans to dilute and dispose of at least 34 metric tons of surplus plutonium; this plan should be analyzed under NEPA before the project begins.

4. Disposal regulations: 40 C.F.R. Part 191, subpart B:

Land Withdrawal Act requires periodic 5-year recertification of WIPP's compliance with the 40 C.F.R. Part 191 disposal regulations. (§ 8(f)). LWA calls for “documentation of continued compliance with the final disposal regulations.” (*id.*).

DOE must report any changes in the facility or its operations, such as introduction of surplus plutonium in new containers. (40 C.F.R. § 194.4(b)(3)). DOE must “inform the Administrator, in writing, prior to making such a planned change in activity or disposal system condition.” That report raises the question whether the compliance certification must be modified, suspended or revoked. Any modification or revocation of the certification “shall be done by rule pursuant to 5 U.S.C. 553,” thus arguably subject to judicial review.

At the 5-year point, DOE must report to EPA any changes, and if there are significant departures, EPA must initiate a rulemaking about whether the certification should be revoked or modified. 40 CFR § 194.65.

5. Compliance with RCRA (New Mexico Hazardous Waste Act).

“The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.” (40 CFR § 270.30(l)(2)). The Permittee is also required to “give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.” 40 CFR § 270.30(l)(1).

Since the existing permit describes the manner of waste characterization and denotes the underground hazardous waste disposal units—all of which would change with the receipt of surplus plutonium—DOE would need to obtain modifications to the State’s permit to dispose of that material.